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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/726,794

Applicant(s)

KOBAYASHI, OSAMU

Examiner

Kenan Cehic

Art Unit

2609

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 18-35, 38-40 and 43-46 is/are rejected.
- 7) ☒ Claim(s) 16, 17, 36, 37, 41 and 42 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date See Continuation Sheet.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :04/02/2007, 04/02/2007, 01/03/2007, 10/25/2006, 10/04/2006, 08/28/2006, 05/15/2006, 04/17/2006, 02/06/2006, 12/05/2005, 09/19/2005,.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it contains the terms "is disclosed".

Correction is required. See MPEP § 608.01(b).

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The attempt to incorporate subject matter into this application by reference

(page 1- page 2) is improper because applicant has failed to provide the U.S. Patent

Application Serial Number or Patent Number.

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

5. Claims 16, 36, 41, and 42 are objected because of the following informalities:

Art Unit: 2609

For claim 16, the phrase "the display device" is the first occurrence. It is suggested to the applicant to replace the phrase with -- a display device --. Similar problems exist in claim 36 line 2.

For claim 41, the terms "the source device physical layer" in line 14, seem to refer back to "the source physical layer" in line 7. If this is correct, it is suggested to the applicant to change those terms to --the source physical layer --. Similar problems exist in claim 41 lines 16,17,19. Additionally, for claim 41, the terms "the link layer" in line 7, seem to refer back to "source link layer" in line 5. If this is correct, it is suggested to the applicant to change those terms to --the source link layer --.

Claim 42 is object because it depends on claim 41.

Double Patenting

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness

Art Unit: 2609

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of US 6,992,987 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following:

For claim 1, claim 1 of US 6,992,987 B2 discloses A packet based display interface arranged to couple a multimedia

source device to a multimedia sink device, comprising:

a transmitter unit coupled to the source device arranged to receive a source packet data stream in accordance with a native stream rate; a receiver unit coupled to the sink device; and a linking unit coupling the transmitter unit and the receiver unit arranged to transfer a

Art Unit: 2609

multimedia data packet stream formed of a number of multimedia data packets based upon the source packet data stream in accordance with a link rate that is independent of the native stream rate between the transmitter unit and the receiver unit.

Applicant's claim 1 merely broaden the scope of patent number US 6,992,987 B2 claim 1 by eliminating the elements :

“a method for generating a pixel clock rate comprising:
determining the link rate as a subset of a master frequency
23.76 GHz that is equal to $2^{10} \times 3^3 \times 5^7 \times 11^1$ Hz;
expressing the determined link rate(LR) as A', B', C', D'
where $LR = 2^{A'} \times 3^{B'} \times 5^{C'} \times 11^{D'}$ HZ wherein $A' \leq 10, B' \leq 3,$
 $C' \leq 7, D' \leq 1$;
expressing the pixel clock rate (PC) as $2^A \times 3^B \times 5^C \times 11^D$ Hz
wherein $A \leq 10, B \leq 3, C \leq 7, D \leq 1$; and
regenerating the pixel clock rate from the link rate as pixel
clock rate=(link rate) x ($2^{A-A'}, 3^{B-B'}, 5^{C-C'},$ and $11^{D-D'}$).”

It has been held that the omission of an element and its function is an obvious expedient if the remaining elements perform the same function as before. In re karlson, 136 USPQ 184 (CCPA).

Also note Ex Parte Raine, 186 USPQ 375 (bd. App. 1969); omission of a reference element whose function is not needed would have been obvious to one skilled in the art.

10. Claim 1-7 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1-18 of copending Application No. US 2004/0221315 in view of Kim et al. (US 7,075,987 B2).

This is a provisional obviousness-type double patenting rejection.

For claim 1, claim 1 in US 2004/0221315 discloses A packet based display interface arranged to couple a multimedia source device to a multimedia sink device, comprising (see claim 1 lines 1-3):

Art Unit: 2609

a transmitter unit coupled to the source device arranged to receive a source packet data stream in accordance with a native stream rate (see claim 1 lines 5-7);

a receiver unit coupled to the sink device; and (see claim 1 lines 9)

a linking unit coupling the transmitter unit and the receiver unit arranged to transfer a multimedia data packet stream formed of a number of multimedia data packets based upon the source packet data stream in accordance with a link rate that is independent of the native stream rate between the transmitter unit and the receiver unit. (see claim 1 line 11-16)

With regards to claims 2-7, US 2004/0221315 discloses the identical claim limitations in claims 2-7.

Claim 1 of US 2004/0221315, however does not teach that:

The multimedia data packet stream being a video data stream.

A native video data rate.

That the multimedia data packet stream is formed of number of main link characters.

Kim et al. (US 7,075,987 B2) from the same or similar field of endeavor teaches a video data stream (see column 4 lines 13-16); that packets are also called "characters" (see column 6 line 65 through column 7 line 3) and a native video rate (see column 3 lines 63-65). Thus it would have been obvious to a person of ordinary skill at the time the invention was made to combine the video data stream, native data rate and main link characters into the claim 1 of US 2004/0221315. Since US 2004/0221315 can transmit multimedia packets streams at a rate it would also be capable to transmit video data streams and a certain video data rate. Additionally,

Art Unit: 2609

since multimedia packets can be any digital data, those streams could have been formed by character, which also represent digital data.

The motivation for claim 1, is that one could optimize the system if only video data was used, as opposed also to audio, text etc. If one knew that it would be only video data, the system can be customized to perform better.

The motivation for claim 2, is that one is able to increase the capacity of video data transferred.

The motivation for claim 3, is that with the unidirectional link one is able to just transfer video data to the multimedia sink, while having a different channel for control/auxiliary functions.

The motivation for claim 4, is to have the bidirectional link made up of two unidirectional links is so that video data or other control data can be transfer without data collision or handshaking.

The motivation for claim 5, is to have virtual links for different video data packet streams is that one is able to control the bandwidth of the over all link better, thus increasing the delivery/quality of the video stream.

The motivation for claim 6, is that the sum of virtual links is equal or less to the bandwidth of the main link is so that one can manage the entire bandwidth of the link by representing it by virtual links.

The motivation for claim 7, the motivation for packetizing a stream and distributing it over different links is that one can improve the quality of service if certain links are congested

Claim Rejections - 35 USC § 101

11. 35 U.S.C. 101 reads as follows:

Art Unit: 2609

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

12. Claim 44-46 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

For claims 44-46, the claim limitation "a computer program product" in line 1, is not a process, machine, manufacture, or composition of matter, or any new and useful improvement thereof because there is no physical structure/connection of medium recited in the claims. To overcome this rejection, it is suggested to change "a computer program product" to - - a computer readable medium encoded with a computer program - -.

Claim Rejections - 35 USC § 112

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claim 7, 9-11, 13, 14, 25, 27, 29-31, 33, 43, 44-46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For claim 7, the claim limitation "the respective virtual link" in line 2, has no antecedent basis. Similar problems exist in claim 10 line 1, claim 27 line 2.

For claim 9, the claim limitations "the information" in line 1, has no antecedent basis.

Similar problems exist in claim 29 line 1, claim 30 line 1.

Art Unit: 2609

For claim 10, the claim limitation “the results of training session information” in line 2, has no antecedent basis. Similar problems exist in claim 30 line 2.

For claim 11, the claim limitation “the information transfer” in line 3, has no antecedent basis. Similar problems exist in claim 31 line 3.

For claim 13, the claim limitation “the main link data packets” in line 3, has no antecedent basis. Similar problems exist in claim 33 line 3.

For claim 14, the claim limitations “a determination of a number of native stream clocks in 2^{20} cycles of link cycle clock frequency period” is indefinite and unclear. In the terms “determination of a number of native stream clocks”, it is not clear what determination of clocks the applicant is referring to. Additionally, it is not clear if the applicant is referring to frequency or period.

For claim 25, the claim limitation “the main link unit” in line 1, has no antecedent basis.

For claim 43, the claim limitations “the display device application profile layer” and “the source device application profile layer” have no antecedent basis.

For claim 44, the claim limitations “the source device physical layer” and “the display device physical layer” in lines 14 and 15 respectively are the first occurrence. It is suggested to applicant to change those to – a source device physical layer- - and - - a display device physical layer- - . Additionally, in claim 44, for the claim limitation “the computer code” in line 19, it is not clear which computer code the applicant is referring to.

Claim 45 and 46 are rejected because they depend on claim 44.

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

16. Claim 1-4, 8-11, 13, 18, 19, 21-24, 28-31, 33, 38, 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Wolf et al. (US 6,914,637 B1), hereinafter referred to as Wolf.

For claim 1 and 21, Wolf et al. teaches a transmitter unit (see Figure 2, reference 1') coupled to the source device arranged to receive (see Figure 2, reference signs 13, 1', DigVideo, SPDIF, MCLK) a source packet data stream (see Figure 2, reference 13, MPEG-2 are inherently packets of either audio or video) in accordance with a native stream rate (see column 11 lines 58-62, the audio can have different rates); a receiver unit (see Figure 2, reference 2') coupled to the sink device (see Figure 2, reference 26 and 27); and

Art Unit: 2609

a linking unit coupling the transmitter unit and the receiver unit (see Figure 2, reference CH0, CH1, CH2 and CHC) arranged to transfer (see column 4 lines 57-66 and column 8 lines 44-51) see a multimedia data packet stream (see column 14 lines 30-33) formed of a number of multimedia data packets (see Figure 6 and 8 and column 14 lines 30-33) based upon the source packet data stream in accordance with a link rate that is independent of the native stream rate between the transmitter unit and the receiver unit (see columns 12 line 63 through column 13 line 25 and column 17 lines 52-57, video and audio transmission happen at different rates).

For claim 2 and 22, Wolf et al. teaches a multimedia data packet stream is one of a number of multimedia data packet streams (see column 13 lines 25-29 and Figure 8 and column 10 lines 35-40) each having an associated adjustable data stream link rate that is independent of the native stream rate (see columns 12 line 63 through column 13 line 25, a clock between the transmitter and receiver is provided so that transmission can happen at the rate of the video/audio stream).

For claim 3 and 23, Wolf et al. teaches a unidirectional main link (see column 4 lines 57-66 and Figure 2 CH0-CHC, Wolf specifically defines that TMDS can be one-directional) arranged to carry the multimedia data packets (see column 14 lines 30-33) from the transmitter unit to the receiver unit (see column 4 lines 57-66); and a bi-directional auxiliary channel (see Figure 2, reference DDC (also note bidirectional arrows), and

Art Unit: 2609

column 59 lines 30-34 for bidirectional, also note in column 2 Wolf in his definition of a DVI link expressly list the TMDS and DDC channel separately) arranged to transfer information between the transmitter unit and the receiver unit and vice versa (see column 59 lines 30-34 and see column 49 lines 18-23).

For claim 4 and 24, Wolf discloses a display interface as recited in claim 3, wherein the bi-directional auxiliary channel is formed of a uni-directional back channel configured to carry information from the sink device to the source device (figure 2 and col50 lines 33-36) and a uni-directional forward channel included as part of the main channel for carrying information from the source device to the sink device in concert with the back channel (as seen from figure 2 and col2 lines 31 -36 and col2 lines 42-49).

For claim 8 and 28, Wolf discloses a hot plug event detector unit arranged to automatically determine when an active sink device is connected to the linking unit (column 2 lines 36-39).

For claim 9 and 29, Wolf discloses wherein the information includes display timing information used by the sink device to provide a displayed image based upon the received data stream (column 14 lines 9-10 describe a video preamble, which denotes the timing of the beginning of an active video period, which is used by the sink device to understand

that an active video period is beginning, so that the sink device understands that the next data is video data used to display images).

For claim 10 and 30, Wolf discloses all aspects of the invention of claim 1 and further discloses that the information includes sync loss (glitches, column 77 lines 47-50) information, dropped packets information (if packets are received then the receiver has evidence information that they have not been dropped), and the results of training session information (the reference of the rejection of claim 14 regarding the back channel includes configuration information relevant to the transmitter training the transmitter to be able to understand what type of display with which it will communicate, and the results of that session are the successful display of video or graphics or playback of audio).

For claim 11 and 31, Wolf discloses all aspects of the invention of claim 1 and further discloses that the multimedia data packet transfer is an isochronous type transfer that includes a video data stream and a multichannel audio stream (see col 11 lines 47-58 reference, paying particular attention to use of same time base) and wherein the information transfer is an asynchronous transfer (col 14 lines 34-39, asynchronous arrangement of active video periods and data islands).

For claim 13 and 33, Wolf discloses wherein the receiver unit includes a time-base recovery unit (see column 13 lines 12-16) arranged to regenerate (see column 39 lines 65-

Art Unit: 2609

67) a particular data stream's native rate based upon a time stamp embedded within the main link data packets (see column 8 lines 44-51 and column 13 lines 12-16).

For claim 18 and 38, Wolf discloses wherein the number of multimedia data streams are multiplexed to form a single data stream suitable for transmission over the linking unit (see column 29 lines 39-41).

For claim 19 and 39, Wolf discloses wherein some of the multimedia data packets include a number of sub-packets (see Figure 9 and see column 34 lines 53-58).

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 2609

19. Claim 5-7, 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wolf et al. (US 6,914,637 B1) in view of Fuhrman (5,745,837):

For claim 5 and 25, Wolf recites all the claimed limitation as described in claim 2. Wolf does not teach that the main link is consisting of virtual links. Fuhrmann from the same or similar field of endeavor teaches a number of virtual links (see column 38 lines 6-8, each CPE is connected via virtual link) each being associated with a particular one of the multimedia data packet streams (see column 36, lines 13-18 , lines 25-28 ATM transports multimedia content in) wherein each of said virtual links has an associated virtual link bandwidth (see column 3 lines 46-55, the bandwidth for the virtual links, of each CPE, is allocated) and a virtual link rate (see column 56 lines 27-29 the rate of each virtual link is counted, see also column 49 line 60 to column 50 line 7, each CPE can have a varieties of rates and each CPE is connected via a virtual link). Thus it would have been obvious to a person of ordinary skill at the time the invention was made to incorporate the virtual link structure into the communication system as taught by Wolf et al. The virtual link architecture is an abstract idea thus it could have been implemented in the microcontroller of the source device (see Wolf et al. Figure 2, reference 15) via software. Thus one is able to implement the virtual link architecture into the system of Wolf et al. The motivation is that one is able to divide the single physical channel, in an organized manner to different source devices. Thus one can control how much bandwidth each source device gets.

For claim 6 and 26, Wolf and Fuhrmann teach the claimed invention as in claim 5. Wolf does not teach where the virtual link bandwidths are less of equal to the main link bandwidth.

Fuhrmann from the same or similar field of endeavor wherein a main link

Art Unit: 2609

bandwidth is at least equal to an aggregate of the virtual link bandwidths (see Figure 45A and 45B, reference sign 1150, we can have a case where the total number of CPE connections through virtual links is equal of less to the total available channels). Thus it would have been obvious to a person of ordinary skill at the time the invention was made to incorporate a network control that makes sure that the virtual links bandwidth does not exceed the main link bandwidth. One would have been able to implement the method shown in Figure 45A and 45B of Fuhrmann via software in the microcontroller (shown in Figure 2) of Wolf. The motivation is that one needs such a control mechanism in order to allocate bandwidth to stream when there is no available bandwidth left.

For claim 7 and 27, Wolf teaches the claimed invention as in claim 1. Wolf does not teach packetizing streams into virtual links. Fuhrmann from the same or similar field of endeavor teaches wherein the source data stream (see column 36 lines 25-31) is packetized over the respective virtual link based upon a mapping definition (see column 36 lines 25-39, see also Figure 27, "SAR" and note "virtual link information"). Thus it would have been obvious to a person of ordinary skill at the time the invention was made to incorporate this distribution method into the communication system as taught by Wolf et al. One could have added the SAR circuit as taught by Fuhrman into the transmitter (Figure 2, reference 1' of Wolf). For example one could have added the SAR circuit between the "Audio" / "Video" and the "TMDS TX" circuit as shown in Figure 2 of Wolf et al. The motivation is that if we are able to divide the different stream into the virtual links, it is possible to resolve contentions on shared access channels such as the channels taught by Wolf et al. Once again we are able to control the transmission of different source streams a shared channel.

20. Claim 12, 14, 32, 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wolf et al. (US 6,914,637 B1).

For claim 12 and 32, Wolf et al. discloses all aspects of the invention of claim 1 but fails to explicitly disclose that the main link rate is adjustable in the range that includes 1.0 Gigabits per second to 2.5 Gbps. Official notice is taken that it would have been obvious to one ordinarily skilled in the art at the time of the invention to include this functionality to arrive at the invention of claim 12. One would have been able to incorporate those speeds into the system of Wolf by implementing a different clock in the transmitter device. The motivation to do so would have been to accommodate different cable lengths and materials so as to avoid signal dispersion and attenuation of longer cables or poorer (less expensive) conductors.

For claim 14 and 34, Wolf discloses a display interface as recited in claim 13, wherein the time stamp is based upon a determination of a number of native stream clocks in 2^{20} cycles of link cycle clock frequency period (see column 64 lines 29-32, the counter counts the clock cycles and generates the time stamp according to it, additionally see figure 23 for multiple streams of Cycle Time Stamps (CTS); the number of cycles could be 2^{20}). Official notice is taken that, it would have been obvious to a person of ordinary skill at the time the invention was made to use 2^{20} cycles in determining the time stamp. One could have easily implemented a counting mechanism, either via software or digital circuitry, to use 2^{20} cycles in determining the time stamp. The motivation is that is we take along amount of clock

Art Unit: 2609

cycles to determine the Cycle Time Stamp, the system can synchronize the pixel clock and the master clock, thus converging the Time stamp to a almost constant value.

21. Claim 15, 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wolf et al. (US 6,914,637 B1) in view of Hurst, Jr (6,038,000):

Wolf et al. teaches all the claimed invention as in claim 1. Wolf does not teach that if there is an audio stream there is no time stamp. Hurst, Jr from the same or similar field of endeavor teaches wherein when the multimedia data stream is an audio stream (see column 2 lines 47-49, we have audio frames, also column 19 lines 24.), then there is no associated time stamp (see column 19 lines 31-35, mentions a non-stamp audio stream). Thus it would have been obvious to a person of ordinary skill to combine the non-time stamped into the audio stream as taught by Wolf et al. This non-time stamped audio stream could be implemented by leaving out the time stamp field in a audio stream packet blank. The motivation is that if synchronization is not a concern there is no need for a time stamp, which will increase bandwidth and processing time.

22. Claim 20 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wolf et al. (US 6,914,637 B1) in view of Roberts (4,796,203):

For claim 20 and 40, Wolf teaches all of the claimed invention as described in claim 19, additionally Wolf teaches to transmit a displaying image by way of sub-packets (see column 12 lines 59-62, sink device displays information received) included in a corresponding video data stream (see Figure 9 and see column 34 lines 53-58). Wolf does not teach a refresh unit that selectively updates portions of images that need to be update. Roberts from the same

Art Unit: 2609

or similar field of endeavor teaches a selective refresh unit (see Figure 1, "Interface 10") included in the sink device (see figure 1, reference sign 12, "Monitor") that updates only a portion of a displayed graphics image for every video frame (see column 5 lines 50-60, only new image information are used) based upon a number of image coordinates corresponding to the updated portion of the displayed image (see column 5 lines 61-64, only new image information is updated). Thus it would have been obvious for a person of ordinary skill in the art the invention was made to combine the selective refresh interface as taught by Roberts into the video transmission system as taught by Wolf. One could have easily implemented the circuit that Roberts presents in Figure 1 into the transmitter device as taught by Wolf. One could have added this circuit and especially the refresh memory as the first circuitry into the transmitter, so that it receives the video signal from the source device (MPEG 2 encoder). . The motivation is if this circuitry is build in, image portions that do not change need not be updated and thus this redundant information does not need to be transmitted over the link. This obviously saves link bandwidth.

Allowable Subject Matter

23. Claim 17, 37 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

24. Claim 16 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Additionally, the objection set forth in this office action needs to be overcome.

Art Unit: 2609

25. Claim 41 and 42 would be allowable if the objection set forth in this office action is overcome.

26. Claim 43 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action. Additionally, it depends on a objected claim.

Conclusion

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Kim et al. (6,151,334)
- b. Rabenko et al. (US 6,765,931 B1)
- c. Kou et al. (6,154,225)

The above-cited references are to show various video stream interfaces.

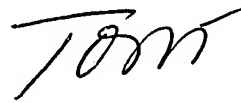

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenan Cehic whose telephone number is (571) 270-3120. The examiner can normally be reached on Monday through Friday 7:30AM to 5:00PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dang Ton can be reached on (571) 272-3171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2609

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KC



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